85th Legislative Session – 2010

Committee: Joint Appropriations Tuesday, February 16, 2010

P - Present
E - Excused
A - Absent

Roll Call

P	Ahlers
P	Burg
E	Bartling
P	Dennert
P	Hundstad
P	Wismer
P	Novstrup (Al)
P	Brown
P	Carson
P	Deadrick
P	Peters
P	Wink
P	Haverly
P	Putnam
P	Hunhoff (Jean), Chair
P	Tidemann, Vice-Chair

OTHERS PRESENT: See Original Minutes

The meeting was called to order by Senator Jean Hunhoff.

2010 Research Centers

Mr. Brad Wheeler, Chairman of the Research and Commercialization Council, distributed a handout listing the 2010 Research Centers, funding, and highlights. (**Document #1**)

The funding for the 2010 Research Centers flows from the Department of Tourism and State Development (DTSD) to the Division of Research and Commercialization.

Originally, four 2010 Research Centers were selected in 2004 by the Research and Commercialization Council. Funding for one of the original 2010 Research Centers was discontinued after the fourth year of funding.

Mr. Gary Johnson, System Vice President for Research with the Board of Regents (BOR), said that South Dakota's research and development leads the region; with a 71% increase for research and development growth from FY03 to FY07.

From FY05 to FY10, the 2010 Research Centers have supported 770 people since 2005; consisting of 268 undergraduates, 318 graduate students, and 184 researchers. Since FY05, the state has invested $21.5 million in the 2010 Research Centers. An additional $106.8 million has been generated from other sources and a conservative economic impact yield is $183.8 million to the state.

Since 2005, ten new Ph.D. programs have started, bringing the total to 28 in the state. There were 551 students enrolled in the Ph.D. programs in the fall 2009 semester. An annual award of $500,000 for the SEED grant benefitted 66 faculty members.

In response to Senator Hunhoff's questions, **Mr. Dan Engebretson**, Chair of the Biomedical Engineering program at the University of South Dakota (USD), said that the success of the 2010 Research Centers has attracted Dr. Yuyu Sun. Some of his research and articles have brought national and international attention to USD.

Dr. Sun has filed for a patent-pending technology licensed to Antimicrobial Technologies Group for a germ-killing molecule that can be added to cloth and paint. A South Dakota start-up company will start a line of antimicrobial products this year.

Mr. Engebretson stated, in response to Senator Hunhoff's question, that the money from commercialization comes from the negotiation of licensing fees, percentage of sales, and royalties. The money flows to the Office of Research and Commercialization. After the cost of the patent is paid for, the revenue generated is split 50/50 between the university and the professor.

Ms. Laura Jenski, Vice President of Research at the University of South Dakota, stated that the university receives 50% of the revenue generated. The funds are reapplied to the research and development program; which can provide more money for additional applied -research or for future legal fees to protect future patents. These funds are in addition to the state appropriation.

Mr. Jim Rice, Director of Department of Chemistry at South Dakota State University (SDSU) and Director of the EPSCoR Program, said that the funding for the South Dakota EPSCoR Program includes funding from six federal agencies and the state. The $600,000 state investment

had a 26:1 return on investment. The total funding for the EPSCoR awards is $15,672,301 in FY09.

In response to committee questions, Mr. Rice said that the EPSCoR is providing the planning funding for the Science Education Center through the current National Science Foundation award. He noted that the Sanford donation is not able to be accessed by the Science Education Center pending the development of this business plan. The EPSCoR program provided about $125,000 over 18 months for the Science Education Center to complete the projects that needed to be completed, such as writing a business plan, trips, and a comparative analysis, in order to access the other funds.

Currently, EPSCoR is not funding experiments at the mine. The only affiliation EPSCoR has is providing the funding to help start the Science Education Center. The focus is to peak the students' interest in science and show future careers in science.

Mr. Mel Ustad, Director of Research and Commercialization with the DTSD, said the there are three areas the state is trying to grow the economy based on the 2010 Research Centers – recruitment, entrepreneurs, and expansion. He told the members that one expansion of the 2010 Research Centers is the development of the Dakota Seeds program. The program has 79 companies with 151 internships and assistantships involved.

Center for Bioprocessing Research and Development

Mr. Bill Gibbons, Associate Director of the Biology and Microbiology Department at SDSU; and **Dr. Lou Christopher**, Director of the Center for Bioprocessing Research and Development; provided an update on the research center.

Mr. Christopher said that the center is a collaboration between South Dakota School of Mines and Technology (SDSM&T) and SDSU involving 28 researchers from 8 departments, 6 post-docs, and 30 students. From FY07 to FY12, the center will receive $2.5 million in funding from the state. The center was able to generate $9.7 million in external funding.

Some of the accomplishments of the Center for Bioprocessing Research and Development include: the Army Research Laboratory funding from the United Stated Department of Defense in the amount of $807,000, $1 million in funding from the Air Force rResearch Laboratory, and working in collaboration with K&L Energy Inc.

Center for Excellence for Drought Tolerance Biotechnology

Dr. David Clay, Director of the Center for Drought Tolerance Biotechnology, stated that the goal of the center is to increase the profitability and long-term sustainability of the farms in the state. The center has received $2.9 million in state funding over three years. In 2009, the center received $3.4 million in federal funds and $1.1 million in private funding.

Dr. Clay informed the committee of the successes of the Center for Excellence for Drought Tolerance Biotechnology. The center is creating teams needed to increase the state's agricultural production. The center is working to speed up the delivery of new genetics and management practices that will increase yield in water limited environments by developing a corn hybrid product.

Another goal of the center is to focus on food security in 2050. The center is evaluating how the nation will provide food to a society larger than today with limited agricultural land.

National Center for the Protection of the Financial Infrastructure

Dr. Kevin Stroff, Director for the National Center for the Protection of the Financial Infrastructure, informed the committee that Dakota State University (DSU) has been producing graduates that focus on cyber security for years. The program was manufactured into a research program and was created in to a research center in 2009.

The center will receive $2 million in state funding between FY09 and FY13 and was able to generate $250,000 in external funding. The center applied for another $300,000 grant with the National Science Foundation.

The center is partnering with the United State Department of Homeland Security to define and operationalize a critical infrastructure protection consortium. Dakota State University is the lead university working in collaboration with the University of Illinois and Dartmouth. There is potential for significant sustained funding through the Department of Homeland Security.

Center for Rare Physics Processes with Ultra-Low Background Experiments at Sanford Lab/DUSEL

Dr. Dongming Mei, Director of the Center for Rare Physics Processes with Ultra-Low Background Experiments at Sanford Lab/DUSEL, and **Mr. Jaret Heise**, Co-Director of the Center for Rare Physics Processes with Ultra-Low Background Experiments at Sanford Lab/DUSEL, said that the center will connect South Dakota to high priority research. The center will receive $3.4 million in state funding from FY09 to FY14. A grant proposal in the amount of $7.5 million has been submitted. The center was able to generate $650,000 in external funds.

In response to Senator Hunhoff's questions, Mr. Heise said that the initial proposal for the 2010 Research Center came from the university's focus. The research was focused on two to three main topics that brought the research together. Any experiment in the Sanford lab requires a prior approval.

Translational Cancer Research Center

Dr. Chadradhar Dwivedi, Translational Cancer Research Center, said that the center is a collaborative project between SDSU and the Sanford Research. The center received $2.3 million in state funding from FY09 to FY14 and generated an additional $3 million in external funding.

Some accomplishments of the center include:
- 4 invention disclosures;
- 1 international patent filed; and
- 2 spin off and collaborating companies.

Senator Hunhoff requested a list of the 2010 Research Centers, amount funded, and years funding is provided.

Center for the Biological Control and Analysis by Applied Photonic (BCAAP)

Dr. Ron Utecht, Director of the Center for the Biological Control and Analysis by Applied Photonic (BCAAP), said that the center is in the first year of funding. The center will receive $4.3 million in state funding and generated $1.4 million in external funding. The center is a collaborative effort between SDSU and Avera research Institute. Seven invention disclosures and three spin off and companies have already evolved from the center.

Some major accomplishments of the center include:
- Filled a tenure track position with a nationally competitive hire complementary to the center focus, John Robinson, MD, PhD;
- Acquired fundamental research equipment;
- Strengthened the partnership with individual Avera researchers;
- Spin off, collaborating companies and partners have contributed $650,689 in research and development funds;
- Spin off company, Tetherx, is fundraising to move SD created technology to First in Man Tryals, a major step towards market approval; and
- Initiated discussions of technology transfer to another South Dakota Company.

Repair, Refurbish and Return to Service (R3S) Applied Research Center

Dr. Michael West, Interim Director of the Repair, Refurbish and Return to Service (R3S) Applied Research Center, said that the center is about one year old. He informed the committee that many weapon systems are not budgeted to be replaced and need repairs. The center is focused on the repair of materials.

The center received $2.2 million in state funding for FY09 to FY14. An additional $4.7 million in external funds were generated to date.

Some of the major accomplishments of the R3S Center include:

- Awarded the ONR/NJC Navy Life Extension Program in the amount of $2.5M over 5 years;
- Repaired five components to date; and
- Hired an R3S research scientist – Dr. Bharat Jasthi, Research Scientist II.

In response to Representative Putnam's question, Dr. West said this center is different from other refurbishing centers in that it focuses on transitioning the technology and implementing it to the development level. Most other refurbishing centers do not have the product transitioned to the end user, but the R3S will. A long-term goal of the center is to have a university affiliated with the center that is federally funded.

Public Testimony

Mr. Mark Luecke, CEO for South Dakota Innovations Partners, said that the South Dakota Innovations Partners is an early stage venture capital firm with a mission to accelerate science and technology based economic development in South Dakota and to earn a return on investment for the limited partners. The strategic objective is to close the gap that exists between federal and state research funding and the requirements of industry and later stage venture capital firms.

To capture economic value, South Dakota Innovations Partners focuses on research with market application. Without the research funded from the 2010 Research Centers, the South Dakota Innovations Partners would have a very limited number of deals. South Dakota Innovations Partners would have a difficult challenge identifying deal sources for technology based start-up companied without the research funded through the 2010 Research Centers.

Mr. Luecke stated that the 2010 Research Centers also derisk – take the risk out of a technology. The South Dakota Innovations Partners would have a difficult time correlating the risk and return of the investments based on basic scientific research without the 2010 Research Centers.

In response to Representative Putnam's question pertaining to a payback to South Dakota Innovations Partners, Mr. Luecke said that the South Dakota Innovations Partners investors are putting their investment at risk to get the product to market. When a customer is able to pay from a product in the market, the company will generate a profit and thus a return on investment for the investors.

Mr. Jeremy Freking, Executive Director of the South Dakota Biotech Association, said that South Dakota Biotech Association is a membership association that was created in 2006. It represents over 35 member companies that are involved in the biotechnology and bioscience industry in three areas: food and agriculture, renewable energy, and human health.

The 2010 Research Centers are key to the South Dakota Biotech Association's success because the biotechnology and bioscience industry is highly competitive industry. One significant

contribution from all the partners is the sharing of people, equipment, knowledge, and expertise to move the industry forward.

Mr. Freking said that in the past three years, the 2010 Research Centers have partnered with the South Dakota Biotech Association by participating in the international biotech conference. The conferences attract about 25,000 people from around the world and over 2,000 exhibitors.

South Dakota Biotech Association appreciates South Dakota's commitment and investment to the research and development. From 2002 to 2006, bioscience academic research spending increased 106% in South Dakota compared to a 36% increase nationally.

Mr. Rob Hrabe, Chief Executive Officer for H.F. Webster, distributed a document that outlines this companies association with the 2010 Research Centers. (**Document #2**) He noted that H.F. Webster is the implementation arm of the R3S center by taking the research from the center and implement and conduct activities.

H.F. Webster works closely with the depots in receiving the engineering authority and getting the research repairs qualified. Mr. Hrabe noted that the entire company evolved from the concept of the R3Z research center.

In response to Representative Putnam's questions, Mr. Hrabe said that H.F. Webster currently has 7 FTEs and $1 million in annual revenues and projects to have 18 FTEs and $1.6 million in annual revenues within the next year. He hopes to double the employees each year for the next two to three years. The funds borrowed from the Governor's Office of Economic Development were used to purchase equipment and startup supplies. Mr. Hrabe intends that the revenues will make the company self sustaining.

Agricultural Experiment Station

Dr. Don Marshall, Interim Dean of the College of Agriculture and Biological Sciences, and **Dr. John Kirby**, Associate Dean and Director of the Agricultural Experiment Station, informed the committee on the FY11 budget, which is outlined in the university's budget summary on page 5 of Document 5 that was distributed on January 21, 2010. The total funds allocated to the Agricultural Experiment Station (AES) in FY10 were $33,838,854. Grants and contracts, totaling $19,582,370, comprise 39% of all SDSU grants and contracts.

Dr. Kirby stated that South Dakota has the highest rate of return in the nation on dollars invested in agricultural research for the past 60 years.

Three of the original four 2010 Research Centers are located in the College of Agriculture and Biological Sciences. They include: the Center for Infectious Disease Research and Vaccinology,

the Center for Bioprocessing Research and Development, and the Center for Drought Tolerance Biotechnology. Since 2007, the AES has developed a dependable funding stream and has hired eight faculty members for the Center for Drought Tolerance Biotechnology; three faculty members for the Center for Infectious Disease Research and Vaccinology; and one faculty member for the Center for Bioprocessing Research and Development.

In response to Representative Tidemann's question, Dr. Kirby stated that the funding for the eight faculty members for the Center for Drought Tolerance Biotechnology was not federal funds, but realized through budget realignment. Four other people were laid off due to budget realignments.

Dr. Kirby explained the AES priorities for 2010 that are outlined in the university's budget summary on page 5 of Document 5 that was distributed on January 21, 2010. The 2010 priorities include:

- Biorenewable energy economic development;
- Applied Genomic Solutions;
- Natural Resource Stewardship;
- Community innovation and leadership; and
- Enhancing grain/livestock/food system economic development.

Senator Hunhoff asked about the revenues generated. Dr. Kirby stated that the AES has a very large and extensive operation across the state that produces revenues. Some of the items that generate revenue include livestock and agricultural products.

In response to committee questions, Dr. Kirby stated that the soil testing pays for almost all expenses incurred except for staff. Currently, the budget consists of 90% salaries and 10% operating. The goal is to be at 80% salaries and 20% for operating and non-fixed costs. The money for the pay raises comes from the appropriated budget. The AES converted 23 FTEs to pay raises. The AES wants to have faculty pay levels comparable to the levels in the early 80's. Currently there are six positions open - one in meat sciences, one in human nutrition genomics, two in economics, and two in agricultural and bio-system engineering. The total cost to fund the 6 open positions would be $500,000, which is about 75% general funds.

Senator Hunhoff asked about the recently announced hiring freeze. **Mr. Wes Tschetter**, Assistant Vice President of Finance and Business at SDSU, told the committee that the hiring freeze excludes research intensive positions.

Senator Hunhoff asked about the $500,000 increase in travel from last year. Mr. Tschetter responded that the increase is related to the grants and contracts identified in the expense authority request in the budget. Most of the travel is in-state.

In response to Senator Haverly's questions, Mr. Tschetter stated that the university has a contract to fund the research that is funded by sponsored programs. Most of the positions filled utilize outside funds. There may be a small component of general funds, but all state funded positions will be evaluated to determine if it will be filled based on criteria for the hiring freeze.

Cooperative Experiment Station

Dr. Latif Laghari, Director of the Cooperative Extension Service (CES), informed the committee that the CES was reorganized in September 2009 based on the Letter of Intent from the Joint Committee on Appropriations and recommendations from faculty and stakeholders.

To collect the input from the faculty and stakeholders, a survey was conducted. The results showed that 95% felt the Extension information was credible, 66% percent knew the Extension programs available to them, and 85% felt the Extension services met their needs.

Dr. Laghari said that the CES strives to be relevant, proactive, and accountable to the people of South Dakota. The 2010 priorities include:

- Enhance coordination between state, regional, and national program leaders;
  - Organize Extension faculty and staff around integrated, multi-disciplinary issue-based programming teams, lead by newly created Extension program leaders.
- Keep Extension responsive;
  - Proactively organize Emerging Issues Task Forces to address issues such as H1N1, suicide prevention in youth, moldy corn due to delayed harvest, family financial crises, obesity, health and nutrition, sustainable communities, alternative & renewable energy.
- Keep Extension relevant;
  - Identify and implement high-impact educational programs in emerging issues.
  - Use technology to expand and strengthen Extension programs in rural and urban communities.
  - Continue integration with research programs. Enhance our partnership with the Agricultural Experiment Station to assure that new knowledge and science is an on-going component of Extension educational programs.
  - Seek new partnerships through programming input from Extension stakeholders.
- Bring the resources of SDSU to communities;
  - Position Cooperative Extension to serve as the front door for SDSU outreach education, student recruitment and community engagement.
- Increase leadership and educational opportunities for youth in South Dakota
  - Enhance and expand the 4-H/Youth Development program to reach, educate and serve more youth in South Dakota.

In 2009, the CES had many successes including:

- Fostered the wise use of resources to improve productivity and profitability of the state's 31,300 crop and livestock producers;
- Served 40,000 youth and 3,000 volunteers. A national study of the impact of 4-H found that 4-H participants are 41 percent less likely to be involved in risk or problem behaviors and will have higher grades and have higher expectations to go to college;
- Helped Medicare beneficiaries save $1,083,612 in premiums and drug costs by comparing and re-enrolling into different drug plans; and
- Helped 4,000 citizens in 36 communities create local economic development plans resulting in: twelve new businesses, housing initiatives, transportation initiatives, nonprofit entities, community foundations, farmers markets, and day cares.

Senator Hunhoff asked about the decrease of 19.3 FTEs. Mr. Tschetter stated that the reduction of 19.3 FTEs is requested in the budget. The CES evaluated the non-utilized FTEs and of the 30 FTEs identified in the Governor's Budget Book published by the Bureau of Finance and Management, the CES can eliminate 19.3 FTEs.

The $200,000 budget cut last year impacted the personal services budget. Mr. Tschetter noted that 4.3 FTEs were impacted by the $200,000 budget reduction and 15.0 FTEs are being eliminated because federal funds are not appropriated.

Representative Wink requested the CES breakout the personal services and travel expenses associated with four success areas – Agriculture and Natural Resources, 4-H and Youth Development, Family and Consumer Sciences, and Community Development.

Representative Tidemann asked about open positions. Dr. Laghari said that there are six county level positions open in Pennington, Minnehaha, Roberts, Bennett, and Deuel Counties. The total funding for the six positions totals $300,000.

Public Testimony

Mr. Rex Newling, State Advisory Board Member for the CES, said that the 4-H program provides great opportunities for South Dakota youth. The program has expanded to include science and technology, which involves more than only rural children.

Representative Carson asked about the importance of the State Fair. Mr. Newling responded that the State Fair is the ultimate goal of all 4-H participants. It is the conclusion of the year's work where it is showcased and evaluated.

In response to Representative Wink's question, Dr. Laghari stated that there has been a recent push for 4-H with a focus to reach audiences that were not previously reached. The CES hopes to add 5,000 children and 1,000 volunteers in the next five years.

Mr. Bristol Nielsen, 4-H participant, stated that 4-H has created the foundation needed for him to become a rancher. Without the program, he would be less prepared for the future. The 4-H program has provided the opportunity to perform, compete, learn, meet people, and show his creativity.

Ms. Emily Ketteler, 4-H participant, told the committee that 4-H has given her many opportunities to travel places around the country and meet with state legislators. It is a great experience the helps a student become a leader for younger children.

MOTION: TO APPROVE THE MINUTES OF JANUARY 13, 2010

Moved by: Deadrick
Second by: Brown
Action: Prevailed by voice vote.

MOTION: ADJOURN

Moved by: Deadrick
Second by: Peters
Action: Prevailed by voice vote.

Lisa Shafer
Committee Secretary

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Jean M. Hunhoff, Chair